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VARIABLES ASSOCIATED WITH CORRESPONDENCE STUDY, A STUDY TO TEST TWELVE HYPOTHESES.

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THE PURPOSE OF THIS 1963-65 UNIVERSITY OF NEVADA STUDY WAS TO DETERMINE IF RELATIONSHIPS EXISTED BETWEEN THE DEGREE OF SUCCESS IN COLLEGE LEVEL COURSES AND SUCH CORRESPONDENCE STUDENT VARIABLES AS AGE, SEX, ACHIEVEMENT, COMPLETION, WITHDRAWAL, REASON FOR ENROLLING, DISTANCE FROM THE CORRESPONDENCE CENTER, PREVIOUS EDUCATION, AND THE TIME ELAPSED BETWEEN ENROLLMENT AND THE SUBMISSION OF THE FIRST ASSIGNMENT. THE SUBJECTS, 410 MALE AND 495 FEMALE STUDENTS RANGING IN AGE FROM 16 TO 72 BUT WITH OVER HALF AGED 29 OR UNDER, CAME LARGELY FROM NEVADA. SIGNIFICANT RELATIONSHIPS WERE FOUND BETWEEN COMPLETION RATES AND THE VARIABLES OF TIME LAPSE BEFORE SUBMISSION OF THE FIRST LESSON, DISTANCE FROM THE CENTER, PREVIOUS EDUCATION, AND THE REASON FOR ENROLLING, AND BETWEEN THE TIME REQUIRED FOR COURSE COMPLETION AND THE REASON FOR ENROLLING, BUT NOT BETWEEN COMPLETION TIME AND DISTANCE OR BETWEEN ACHIEVEMENT AND THE VARIABLES OF AGE, SEX, AND COURSE COMPLETION TIME. FINDINGS SUGGEST A NEED TO ENCOURAGE PROMPT SUBMISSION OF LESSONS, GIVE SPECIAL GUIDANCE AND MORAL SUPPORT TO YOUNGER, LESS EXPERIENCED STUDENTS AND TO MALE STUDENTS, AND REVIEW PROCEDURES REGARDING THE RATE OF SUBMITTING LESSONS AND THE MINIMUM TIME ALLOWED FOR COURSE COMPLETION, AS WELL AS TO CONDUCT FURTHER RESEARCH AND IMPROVE INFORMATION DISSEMINATION. (THE DOCUMENT INCLUDES FIVE REFERENCES AND SEVEN TABLES. (LY)

VARIABLES ASSOCIATED WITH CORRESPONDENCE STUDY: A STUDY TO TEST TWELVE HYPOTHESES

by

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INTRODUCTION

Diverse policies and procedures affecting students enrolled in correspondence study have been adopted by institutions of higher learning. Such limitations as the length of the period of enrollment, the minimum time for the completion of the course, and the inactive period allowed before the submission of the first assignment have been set arbitrarily with little data to substantiate the decision. The purpose of this investigation was to provide such data by determining if relationships exist among such variables as sex, age, achievement, completion, withdrawal, reason for enrolling, distance from the correspondence center, educational background, and the time elapsed between enrollment and the submission of the first assignment. Practices based on the findings can be developed to assist the student in reaching maximum achievement in learning for his efforts.

It is becoming essential that more research be done in the area of correspondence study to provide the necessary guide lines for this rapidly growing means of education. An explanation of the phenomenal growth of correspondence study is given by Wedemeyer and Childs in New Perspectives in University Correspondence Study [1:5]*. Conventional means of education cannot meet the modern demands for education by themselves. Further, social and technological changes occur so rapidly that it is necessary to have some flexible form of instruction, a form which can be fitted into the schedule of the people who must be kept abreast of the new developments. Because correspondence study is free of space and time limitations, it can meet the demands of our mobile population. In addition, correspondence study may be used to expand and enrich the residence programs of education.

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*Numbers in brackets refer to numbered references in the bibliography; those after the colon are page numbers. Brackets have been used for this purpose to avoid confusion with numerous other figures requiring parentheses.

With this increasing recognition of the importance of correspondence study comes the responsibility that procedures and techniques used should be the most effective possible. Much good research related to classroom teaching may be appropriate for application to correspondence study. Many decisions based on years of teaching experience provide direction to correspondence study procedures as do the comments of the students, faculty, and general public. We cannot, however, depend entirely on such subjective evidence for the answers to our problems. Well-planned and well-organized research is necessary to bring correspondence programs to their maximum potential.

DESIGN OF THE STUDY

To determine if certain variables had a significant relationship with the degree of success achieved by the student enrolled in a correspondence course, data regarding certain factors--age, sex, distance from the correspondence center, level of previous education, reason for enrolling, lapse of time between the date of enrollment and the submission of the first lesson, whether the student completed the course, and the length of time taken to complete one semester hour credit--were collected for all students who were enrolled in college level courses at the University of Nevada and whose enrollment terminated within the two-year period, July 1, 1963, to June 30, 1965. Two qualifications were applied to this group: (1) students who were enrolled under the contract with the United States Armed Forces Institute were excluded: and (2) in cases where a student had more than one course enrollment terminating within the period, only the course terminated first was used.

Description of the Subjects

The number of students included in the investigation was 905. The ages of the students ranged from 16 to 72. The number of students in each of the age categories used in the study is listed in Table I. The largest frequencies will be noted in the 20-24 year interval, in which approximately one-third of the enrollments lie. Over one-half of the students were 29 years of age or less. Less than five percent

of the students were over 55 years of age.

TABLE I. FREQUENCY OF STUDENTS IN VARIOUS AGE INTERVALS

Age Group in Years	Number of Students	Percentage of Total	Cumulative Percentage
15-19	67	7.40	7.40
20-24	300	33.15	40.55
25-29	149	16.46	57.01
30-34	114	12.60	69.61
35-39	78	8.62	78.23
40-44	60	6.63	84.86
45-49	47	5.19	90.05
50-54	47	5.19	95.24
55 or over	43	4.75	99.99*
TOTAL	905	99.99*	

*Due to round-off of numbers

Females outnumbered the males to a degree. Of the 905 students, 410 (45.30%) were male and 495 (54.70%) were female.

Distance from the correspondence study center. Ten zones were established for the purpose of determining the distance the student lived from the office of the Correspondence Division, University of Nevada, at Reno, Nevada. Five of these zones were within the State of Nevada. Zone 1 included the area in-state within a 50-mile radius of Reno; Zone 2, over 50 but within a 100-mile radious; Zone 3, over a 100-mile radius but within 200 miles; Zone 4, over 200 but within a 300-mile radius; and Zone 5, over 300 miles but within the state. The remaining zones were as follows: Zone 6, the remaining western states; Zone 7, the central states; Zone 8, the eastern states; Zone 9, Alaska and Hawaii; and Zone 10, foreign countries and overseas military addresses.

Students from within the state accounted for 79.22 percent of the total enrollments. The higher percentage, 19.89%, from Zone 5 than the percentages from those zones closer to the center is most likely due to the fact that Las Vegas, the largest city in the state and the location of Nevada Southern University, is in this area.

Level of previous education. Five categories were established for grouping the educational level of the students. Category 1 included students whose educational level was that of having received a high school diploma or less; Category 2 included students who had had no more than two years of college; Category 3, students up to four years of college; Category 4, students who had received a baccalaureate degree; and Category 5, students who had received a graduate degree. Of the subjects studied,2.10 percent of the students had a high school education or less; 14.25 percent, one or two years of college; 31.82 percent, three or four years of college; 48.51 percent had earned a baccalaureate degree; and 3.32 percent had a graduate degree. Of interest, also, is the fact that the percentage of those enrolled as undergraduates was slightly less than the percentage of those who had already received a baccalaureate or graduate degree. The University of Nevada neither offers, nor accepts, graduate credit for correspondence courses.

Reason for enrollment. The classifications used for the collection of data relating to the reason students gave for enrolling in correspondence courses were as follows: (1) college credit; (2) teacher certification; (3) college credit and teacher certification; and (4) other, which included such objectives as personal improvement, occupational advancement, college entrance requirement, and college preparation. Over sixty percent determined their earning college credit was the incentive, while approximately twenty percent gave teacher certification requirements as their reason for enrolling. The percentage of those who indicated both college credit and teacher certification (10.72%) as their reason for enrolling added to the percentages for college credit and teacher certification singly points out that 93.37 percent were interested in these two reasons.

Lapse of time between enrollment and first lesson. Approximately one-fourth (26.63%) of the students submitted the first lesson within ten days after the date of enrollment. Within twenty days nearly one-half (48.17%) had sent in at least one assignment. Nearly two-thirds (62.65%) of the students had submitted a minimum of

one lesson within thirty days. The range for the lapse of time taken before submitting at least one lesson to the correspondence center was one to 560 days.

Completion rate. No distinction was made between the student whose enrollment was cancelled and the student whose enrollment was withdrawn. For purposes of this study, withdrawals were course enrollments which had been cancelled by the student with or without his having submitted lessons, enrollments for which the time allowed the student (one year with the privilege of one extension period of six months) had expired, or enrollments which had expired without the requirements of the course having been completed by the student.

Of the 905 students whose enrollments terminated in the two-year period, 540, or 59.67 percent, completed the course while 365, or 40.33 percent, failed to do so. If the number of students who submitted no lessons were deducted from the number of total enrollments as required by the formula* established by the Correspondence Division, National University Extension Association (NUEA) [2:4], 127 who submitted no lessons would reduce the total enrollments to 778. The completion rate would then be increased to 69.41 percent.

The rate of the completion of courses was notably higher for the women than for the men. Of the 495 women enrolled, 346, or 69.90%, completed their correspondence course; of the 410 men enrolled, 194, or 47.32 percent, completed their courses.

Length of time to complete. The length of time the students took to complete one semester credit hour ranged from 10 to 537 days. This figure was derived by dividing the total time taken by the student to complete a course by the number of credit hours assigned to the course. For matters of comparison such a basic unit seemed necessary. It will be observed that one-fourth of the students took one to 57 days; one-half of the students took up to 95 days; three-fourths of the students completed one credit hour within 160 days. Over 160 days, 161 to 537 days, were required for one-fourth of the students to complete their courses.

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*Completion Rate = $\frac{\text{Completions}}{\text{Enrollments minus Cancellations}}$

Research Design and Procedure

The correlational design of research was used for this investigation. Cumulative percentages, the rank-difference method for obtaining the correlation coefficient,* and the chi square analysis technique** were used to analyze the data and to determine the degree of relationship, if any, which existed between the variables to be studied. After the appropriate statistical methods were applied to the data to determine the validity of the [redacted] hypotheses, the .01 and .05 levels of significance were determined to provide a basis for evaluating the findings. The criterion of the .05 level of significance was used to reject or accept the [redacted] hypothesis.

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*The formula used for the rank-difference method of obtaining the correlation coefficient is

$$\text{rho} = 1 - \frac{6\,(\Sigma D^2)}{N(N^2 - 1)}$$

in which

rho = coefficient of correlation from rank difference
D^2 = sum of the squares of difference in rank
N = the number of pairs.

This formula is given in Garrett, Statistics for Psychology and Education [3:373].

**The formula for the chi square test is

$$x^2 = \sum \left[\frac{f_o - f_e}{f_e}\right]$$

in which

x^2 = coefficient derived from observed and expected frequencies
f_o = frequency of occurrence of observed or experimentally determined facts
f_e = expected frequency of occurrence on some hypothesis

This formula is given in Garrett [3:253].

Major findings

Twelve hypotheses were examined. The following results were determined:

HYPOTHESIS A. A relationship exists between the lapse of time between the enrollment date and the date the student submits the first lesson, or unit, and whether the student will complete the course. A cumulative percentage was computed of completions in categories based on the four intervals--1-10 days, 11-20 days, 21-30 days, and over 30 days. These intervals were selected because nearly three-fourths of the students who completed their courses submitted at least one lesson within 30 days after the date of enrollment. If more intervals were used, less distinction would be observed. A multiple chi square analysis was also made to determine the significance of the difference.

Major findings. The hypothesis is accepted at the .05 level of confidence. The chi square (83.269) was well beyond the limits of both the .05 (7.815) and .01 (11.345) levels of significance.

Table II indicated that 540 students (59.67%) completed their correspondence courses while 365 (40.33%) failed to do so. The ratio of completions to withdrawals, it will be noted, declines very definitely as the time lapse between the enrollment and the submission of the first assignment increases. While slightly over three-fourths (75.10%) of those who submitted a lesson within 10 days of the enrollment date completed the course, considerably less than half, 40.41%, did so if they allowed 30 days to elapse.

An inspection of cumulative percentages will point out that nearly two-thirds of the students had submitted a minimum of one lesson within the first month of the enrollment period; however, approximately three-fourths (74.08 percent) of the completions were by students who had submitted a lesson within this time period. One-third of the total completions were by those who submitted an assignment within ten days although this group represented slightly more than one-fourth of the total student population.

TABLE II. STUDENTS WHO COMPLETED AND WITHDREW FROM THEIR COURSES IN RELATION TO TIME LAPSE BETWEEN ENROLLMENT AND SUBMISSION OF FIRST ASSIGNMENT.

Time Lapse (Days)	Completions			Withdrawals			Total		
	N	% of Interval	% of Total	N	% of Interval	% of Total	N	% of Total	Cumul. %*
1-10	181	75.10	33.52	60	24.90	16.44	241	26.63	26.63
11-20	144	72.00	26.67	56	28.00	15.34	200	22.10	48.73
21-30	75	59.52	13.89	51	40.48	13.97	126	13.92	62.65
31-over	140	40.41	25.93	198	59.59	54.25	338	37.35	100.00
TOTAL	540		59.67	365		40.33	905	100.00	

*Cumulative percentage

Possible reasons for the result. Very likely a number of reasons contributed to the fact that students who submit lessons soon after enrolling are more likely to complete the course. A student who organizes himself, sets up a schedule, and starts tackling his responsibilities without unnecessary delays tends to be more successful. The mere fact of having started and receiving evidence of progress soon after enrollment would be likely to spur one to complete. The longer the period of procrastination on the part of the student, the less likely he is to continue the interest which prompted him to enroll in the correspondence course.

Field application. Methods to encourage students to submit lessons promptly should be developed by correspondence educators. In the counseling of students in person and in introducing students to correspondence study by written communication, considerable stress should be placed on the importance of beginning their preparations immediately. Students should be informed that the probability that they will complete the course decreases sharply when they delay in getting started with their assignments.

HYPOTHESIS B. A relationship exists between the distance a student lives from the correspondence study center and the length of time a student takes to complete a course. The rank difference method of computing the correlation coefficient was followed. The means of the time taken to complete a course for each of the ten

zones previously described and the distance of these zones from the correspondence study center in Reno were the two variables used.

Major findings. The hypothesis is rejected since the derived coefficient of correlation (.5515) is not significant at the .05 level of significance (.632). Rho of .5515, however, suggests a "substantial or marked relationship" between the two variables according to the table of interpretation given by Garrett [2:176].

Of interest is that students who lived in Zone 7, the central states, took less time to complete their courses than those who lived within fifty miles of the correspondence study center. Three in-state groups--Zones 2, 5, and 4, in that order--also finished in less time than Zone 1.

Possible reasons for the result. The student population within the zones could have varied considerably as to age, sex, reason for enrollment, and educational level. An analysis of these variables in relation to the zone from which the student enrolled was not within the scope of this study.

Field application. Because no significant difference was found in the completion time taken by students living some distance from the center, the student interested in a particular course or institution need not consider the distance in determining how long it will take him to finish the course. Other factors such as the qualifications of the instructor, the excellence of the correspondence course, or the reputation of the correspondence study center might be more important considerations. Cooperative programs by groups of institutions, such as the members of the Correspondence Division of NUEA, to avoid duplication and to avail themselves of the expertise of an instructor well-informed in his subject matter and skilled in teaching by correspondence, might be developed without concern as to the distance from the prospective student.

HYPOTHESIS C. A relationship exists between the distance the student lives from the correspondence study center and whether he will complete the course. A multiple chi square analysis was made using the ratio between the completions and withdrawals of the total number of students as the basis for the expected frequency

of occurrence and the ratio between completions and withdrawals as observed for each time zone for the frequency of occurrence of the observed facts.

Major findings. The hypothesis is accepted as the chi square of 18.539 is significant at the .05 level of significance (16.919). The coefficient, however, does not meet the .01 level of significance (21.666). The probability level lies between the .05 and the .02 levels.

The percentage of completions ranged from 48.00 for students in the central states to 78.18 for those in-state 200 to 300 miles from the correspondence study center. The percentage of the total population for completions was 59.67. No pattern of increase or decrease in percentage of completions is perceptible.

Possible reasons for the result. The courses in which the students enrolled and other factors, such as the profile of the students represented in the different zones, might have contributed to the difference in the completion rates.

Field application. Before any serious application of the findings of this aspect of the study could be made, further investigation into the reason for the difference should be made. It does not seem reasonable to deduce either that a student is more likely or that a student is less likely to complete a course if he lives at a certain distance from the correspondence study center.

HYPOTHESIS D. The reason the student gives for enrolling in a course has an effect on the time he takes to finish the course. A multiple chi square analysis was made to determine the relationship of the two variables. The intervals of time were determined by dividing the number of students who completed into quartile ranks. The percentage of students in each category was used as the basis for determining the expected occurrence and the number of students giving each reason in each of the four intervals--1-57 days, 58-95 days, 96-160 days, and 161 days or more--was used as the observed frequency.

Major findings. The hypothesis is accepted as the chi square (40.013) is significant at both the .05 (16.919) and .01 (21.666) levels of significance. Over ninety-five percent of the students who completed their courses gave "college credit"

or "teacher certification" or a combination of both of these as the incentive to enroll in correspondence study.

In Table III, the mean time taken to complete one semester hour credit is given for each of the reasons for which a student enrolled. Those who listed occupational advancement as the reason for enrolling took the longest time while those who stated that teacher certification was the objective took the least amount of time. Interesting to note, too, is that students enrolled for college credit or for occupational advancement took twice as much time to complete than those who wished to fulfill requirements for teacher certification. The two students who wished to qualify for college entrance also completed their courses in much less time, 79.50 days, than the overall mean time of 116.759 days per credit hour.

TABLE III. MEAN TIME TAKEN TO COMPLETE ONE SEMESTER HOUR CREDIT IN RELATION TO THE REASON GIVEN FOR ENROLLMENT.

Reason for Enrollment	N	Mean Time to Complete
College credit	305	147.738
Teacher certification	140	72.442
College cr. & teacher cert.	75	96.160
Occupational advancement	10	167.900
Personal improvement	5	125.500
Occ. advancement & per. imp.	3	136.160
College entrance	2	79.500
TOTAL	540	116.759

Possible reasons for the result. Definite need to complete a course within a time would tend to motivate a student to complete a course in less time. Teachers who need to remove certain provisions in order to be certified or must have recent training in order to have their certificates renewed are not allowed in the classroom or to receive their salaries after a certain date if the requirements are not met. Frequently these individuals postpone enrolling until shortly before the deadline. This tends to accelerate the submission of lessons or at least to submit them on a regular schedule. Students who find out that they must earn quality points due to unsatisfactory grades in high school or remove certain deficiencies in course requirements often discover this in the summer prior to the time they wish to attend

the university. If they are sincere in their desire to attend school as a regularly admitted full-time student, they must complete the course within a relatively short period of time. College students, on the other hand, may enroll thinking that they will accelerate their progress, only to find that other commitments prevent them from spending the required time to prepare the assignments for the correspondence course. Consequently they must postpone the latter until some later date when their schedule is less demanding.

Field application. Means of assisting students with less definite objectives than teacher certification or college entrance requirements should be developed by correspondence educators. Hints on how to schedule one's study time, the importance of regular submission of assignments, and reminders that no lessons have been received for some time may be helpful. An analysis of the effectiveness of current practices in this regard should be undertaken. Guidance in the timing of their enrollment and selecting of appropriate courses may be helpful to the student who enrolls for the purpose of college credit.

HYPOTHESIS E. The reason the student gives for enrolling in a course has a relationship to his completing the course. A chi square analysis was made using the reasons the student gives for enrolling and the ratio of completions to withdrawals as the two variables.

Major findings. The hypothesis is accepted as the chi square (51.178) is significant at the .05 and .01 levels of significance (.05 = 7.815; .01 = 11.345). Individuals who indicated they were enrolling to earn credits toward teacher certification, or teacher certification and college credit, had a completion rate well above the overall average. The completion rate for those who indicate teacher certification only was 73.68; for those indicating teacher certification and college credit, 77.32. The overall rate was 59.67 percent.

In Table IV the percentages for completions and withdrawals are given for the various reasons given for enrolling in a correspondence course. Those wishing to earn college credit, to advance in their occupation, or to improve themselves were less successful in completing their courses than the overall population. The high

percentage of completions by those wishing to qualify for certification definitely affected this. Persons who enrolled for occupational advancement or college entrance were equally divided as to completions and withdrawals.

TABLE IV. PERCENTAGES OF COMPLETIONS AND WITHDRAWALS IN RELATION TO THE REASON GIVEN FOR ENROLLMENT.

Reason for Enrollment	Completions		Withdrawals	
	N	%	N	%
College credit	305	54.66	253	45.34
Teacher certification	140	73.68	50	26.32
College cr. - teacher cert.	75	77.32	22	22.68
Occupational advancement	10	50.00	10	50.00
Personal improvement	5	16.13	26	83.87
Occ. adv. - per. imp.	3	60.00	2	40.00
College entrance	2	50.00	2	50.00
TOTAL	540	59.67	365	40.33

Possible reasons for the result. Motivation, study skills, and lack of direction in the selection of the correspondence course in which the student enrolled would tend to affect the probability the student will be successful in completing the course.

Field application. Guidance in the proper selection of the correspondence course and ways of successfully pursuing a course to completion should be stressed. Ideally this would be in a face-to-face situation; however, valuable helps can be developed using visual media if the skills in this area of communication are seriously applied.

HYPOTHESIS F. The time the student takes to complete a course has a relationship to the student's achievement as determined by the grade he receives. Here the range of time taken to complete one semester credit hour was divided into four intervals as explained in Hypothesis D. The expected frequencies for each interval were determined by using the percentage of persons giving a particular reason, as classified for this study, represented in the total number of students who completed courses. The frequencies of students actually tallied for each reason under each interval were used as the observed frequencies.

Major findings. The hypothesis is rejected since the derived coefficient (13.338) is not significant at the .05 level (26.217) of significance. The probability of significance lies between the .30 and .50 levels of significance. The percentages for each grade tend to differ only to a small extent from that of the total group which was studied.

Possible reasons for the result. Achievement is based primarily on the student's ability and application to the problem at hand. Further, the amount of time devoted to the preparation of the assignments cannot be determined by the lapse of time between the enrollment date and the completion date with any accuracy. The amount of time available for study would vary widely for each student depending on what other obligations or responsibilities he might have. Concentration, perseverance, and self-reliance tend to be more important considerations than the time lapse.

Field application. Restrictions on number of lessons which may be submitted or the minimum time for the completion of a course should be reviewed in light of these findings. Considerations and decisions may be based on practical administration effectiveness with little concern that it will have an adverse effect on the student's achievement. Students should be advised that the time taken to complete the course has no significant effect on their achievement as reflected in the grades they receive, but that the probability of their completing the course is lessened if they do not start and continue regularly to submit their lessons as soon as possible.

HYPOTHESIS G. A relationship exists between the previous education of the student and the student's achievement as indicated by the grade he receives. The years of previous education given by the student on his application form were tallied under four levels of education established for the purpose of this study--high school diploma or less, one or two years of college, three or four years of college, baccalaureate degree, and graduate degree. The percentage of students receiving each of the grades on a 5-point scale was used as the basis for the expected frequency. The actual number of student receiving each grade for each level of

education was used as the frequency of the observed facts.

Major findings. The hypothesis is accepted as the derived chi square (31.004) is significant at the .05 level (26.296). The chi square falls just short of the .01 level (32.000); the probability of significance lies between the .02 and .01 levels of significance. The mean grade for the total population is 3.041 on a 5-point scale.

Inspection of data in Table V discloses that the average GPA for each group of students increases in direct relationship with the level of education. In a comparison of the mean grade of 3.041 with the mean grade for each group of students, a direct relationship with the level of education is observed. Students with a high school education or less and freshmen and sophomores in college were represented in the category of those receiving C as a grade more than were upperclassmen and persons who had earned a baccalaureate degree.

TABLE V. ACHIEVEMENT OF STUDENTS AS INDICATED BY THE GRADE RECEIVED IN RELATION TO THE LEVEL OF EDUCATION OF THE STUDENT.

Level of Education*	Percentage of Total Represented					Mean GPA	Percentage of Total
	A	B	C	D	F		
1	.57	.00	3.06	.00	.00	2.500	0.74
2	9.20	6.61	9.18	16.67	.00	2.978	8.33
3	30.46	28.51	27.56	29.17	100.00	3.038	29.26
4	55.75	60.33	59.18	45.84	.00	3.054	57.78
5	4.02	4.55	1.02	8.33	.00	3.095	3.89
TOTAL	32.22	44.82	18.15	4.44	.37	3.041	100.00

*Levels of education: (1) up to and including high school diploma; (2) freshman or sophomore in college; (3) junior or senior in college; (4) baccalaureate degree; and (5) graduate degree.

Possible reasons for the results. Because the University of Nevada offers no courses for graduate credit, college graduates who enroll in the correspondence center must choose courses on the undergraduate level. With their educational background it would seem reasonable to expect them to achieve higher grades than students with less experience. The extent to which those with baccalaureate and graduate degrees enroll in 100- and 200-series courses, designed primarily as introductory or survey courses for freshmen and sophomores, was not within the scope of this

paper. It would be surmised, however, that a large number do so since there is no restriction on the level or kind of subject matter studied for recertification purposes in the State of Nevada.

Field application. The achievement made by students in correspondence study seems to indicate that this method of learning is effective in the mastery of the subject matter. In order to assure the student with less educational background of satisfaction, care should be given in helping him select a course that is geared to his talents and experience. Educators who are reluctant to accept correspondence study as an effective means of learning should be given the opportunity to review the accomplishments of those who choose this method to learn.

HYPOTHESIS H. A relationship exists between the previous education of the student and whether he will complete the course. For the expected frequency, the percentage of completions and withdrawals in the total student population studied was used as the basis for the computation. The actual frequency of the students for each level of education was used as the frequency of the observed occurrence.

Major findings. The hypothesis is accepted as the derived coefficient (70.349) is significant at the .01 level of significance (13.277). Students with a high school education or less do not complete courses at the same ratio of completions to withdrawals as those with more educational background. Freshmen and sophomores in college have a higher percentage of completion than those with a high school education or less, but this percentage falls below that of the overall population to a considerable degree. Those with baccalaureate and graduate degrees, as one might expect, have completion rates greatly in excess of the average.

Possible reasons for results. Students who do not qualify for admission to the University of Nevada as regular resident students frequently enroll in correspondence study either to make up a deficiency or to earn additional credits. These students are potential drop-outs as it is likely that they have not formed the proper study habits and self-discipline while they were attending high school. If they had, they would more likely have been admitted with full status. Qualities of self-reliance, perseverance, and effective methods of studying are especially important in

correspondence study as the student is on his own as far as preparing his assignments regularly and carefully is concerned.

The high completion rate of those who have earned a degree, on the other hand, would be a result of the proved ability of the student, some motivation which prompted him to continue his studies, and experience in studying college-level subject matter.

Field application. Guidance, particularly of the student who has just completed high school, should emphasize the requirements of a correspondence course. Careful consideration should be given to the selection of the specific course so that the needs of the student will be met. Further, instructors should be sensitive to the special problems of the student who is trying to make up deficiencies so that he may attend the university on a full-time basis or is exposing himself to the demands of college level courses to determine if he is well enough prepared or interested in continuing his education in a college or university.

HYPOTHESIS I. A relationship exists between the age of the student and whether he will complete the course. The age levels of the students were divided into eight intervals of five years each beginning with the age of fifteen years. The final interval included persons over 55 years of age as the frequency of students was not large enough to warrant a further breakdown. The percentage of persons in each age group represented in the total number of students was used as the basis for the expected occurrences in a multiple chi square test. The actual observations were used as the frequency of occurrence of the observed facts in each of the intervals.

Major findings. The hypothesis is accepted as the chi square (36.032) is significant at the .05 level (15.507) as well as the .01 level of significance (20.090). As was true in connection with students who had had a high school education or less, the young students, 15 - 19 years of age, did not complete as high a percentage of courses as those students who are older did. Conversely, the percentage of completions of those 55 years and older was greater than would be expected considering their degree of representation in the total student population. Except for the two age groups of 30 - 34 and 35 - 39, which changed places in rank,

the pattern of the ratio of completions to withdrawals increased as the ages of the students increased.

The mean age of those who completed correspondence courses was 32.860 and the mean age of those who withdrew was 30.867. The overall mean age for the entire group examined was 32.385.

Possible reason for the results. The explanation given in connection with Hypothesis H concerning the student with a high school background or less is applicable in this instance also. In addition, the older student tends to have more specific goals in mind before enrolling in a course with the rather extensive expenditure of money and effort that are involved. Better understanding, and appreciation, of the standards and methods of college level work would most likely be of further help to the more mature and experienced student.

Field application. The suggestions under this same heading in the discussion of Hypothesis H would seem to be cogent for this aspect of the study also. A concentrated effort to communicate with the younger student and to motivate him to pursue his goals so that he will succeed is most important in the conservation of our human resources.

HYPOTHESIS J. A relationship exists between the age of the student and the student's achievement as indicated by the grade the student receives. Again, the statistical technique used was the chi square analysis. The percentage of the total population represented by each group for each grade on the 5-point scale was the basis for the expected frequencies and the actual number of students receiving each grade in each age interval was used as the observed frequency.

Major findings. The hypothesis is rejected as the derived coefficient (21.964) is not significant at the .05 level of significance, (43.773). The probability of significance lies between .90 and .80. Little variation in the average GPA of the groups of varying ages is evident upon examination of Table VI. The lowest GPA (2.778) was that of the group who were 60 years of age or older. Of these nine students one was 67 and another 72. At the other extreme of the age range, the students in the 15 - 19 and 20 - 24 intervals were close with a [illegible] of 2.818 and

2.952 respectively. The highest GPA was for the students in the 40 - 44 years of age group.

TABLE VI. GRADE POINT AVERAGES FOR STUDENTS IN RELATION TO VARYING AGE LEVELS.

Age interval	N	Grade Point Average
15 - 19	22	2.818
20 - 24	167	2.952
25 - 29	89	3.101
30 - 34	74	3.027
35 - 39	49	3.163
40 - 44	40	3.225
45 - 49	30	3.067
50 - 54	36	3.111
55 - 59	24	3.083
60 - over	9	2.778
TOTAL	540	3.041

Possible reasons for results. The lower GPA of the younger students falls directly into the pattern of the findings of the last two hypotheses; however, in this case the difference is not enough to make it significant. Possibly other factors affected this relationship more than in the other two observations.

Field applications. No special attention need be spent on any special age group in assisting them to raise their level of achievement. The small difference registered in the GPA of the younger students would most likely be by chance.

HYPOTHESIS K. A relationship exists between the sex of the student and whether he will complete the course. A chi square analysis was used to determine the relationship between the two variables. For the basis of the expected frequency of occurrence the percentages of males and females represented in the total number of students who completed courses were used. The number of males who completed and the number of females who completed were used for the observed frequencies.

Major findings. The hypothesis is accepted as the derived coefficient (47.520) is significant at both the .05 (3.841) and the .01 level of significance (6.635). The percentage of completions for the females was 69.90 while the completion rate for males was 47.32. The overall completion rate was 59.67.

The ratio of completions to withdrawals for females is over 2 to 1; for males, the ratio of completions to withdrawals is almost 1 to 1, with the trend slightly in excess for the withdrawals.

Possible reasons for results. Female students may not be in a position to waste the financial investment involved as they often are more dependent for funds either from their family or their husband. Another explanation may be that the males have greater demands on their time due to being the primary wage earner, in the case of married couples, or financially independent, if single. Often they hold more responsible positions while attending school part-time or attempting to earn credits through correspondence study for degree requirements, job advancement, or self-improvement.

An observation of Terman and Tyler [4] and supported by other educators, asserts that there are no sex differences in general intelligence or in total scores on tests of intelligence between men and women; however, male students tend to be superior on quantitative and spatial problems and girls on verbal problems. As written communication is so definitely a part of correspondence study, this observation may have some relation to the higher percentage of completions by the female students in the present study. The male student may tend to become discouraged by the amount of writing required in most correspondence courses.

In The Adolescent Years [5], Wattenberg proposes that twice as many boys as girls have reading difficulties, that girls work harder to win favor, and that girls have a greater interest in "book work." These observations might also explain, in part, the reason for the higher completion rate by the female student in this study. Reading instructions, basic information in the assigned text, and additional references are important aspects of learning in a correspondence study course.

Field application. Studies should be made and techniques devised to assist males in raising the completion rate. It may be that the communication between the instructor and the student breaks down due to misunderstandings, absence of specific suggestions and comments to encourage the student, or difference in level of vocabulary and expository skills. In the guidance of the male student, special effort

should be made to help him develop good study habits with a regular schedule set down to follow. These helps are important for assisting both sexes to accomplish their goals; however, concentrated effort should be made to stimulate the male student to higher achievement.

Individual conferences, follow-up notices designed to appeal to a man, friendly letters geared to the special interest of the male student may be helpful in this connection. Post-completion or withdrawal responses, either verbal or written, may provide further insight into the problem.

HYPOTHESIS L. A relationship exists between the sex of the student and the student's achievement as indicated by the grade he receives. The percentage of each sex represented in the total group to receive each grade on the 5-point scale was used to determine the expected frequency. The actual observation of men and women completing for each grade was used for the frequency of observed fact.

Major findings. The hypothesis is rejected as the derived coefficient (3.029) is not significant at the .05 level (9.488) of confidence. The probability of significance lies between .50 and .30. The mean grade for the males was 3.026 and that for the females was 3.049.

Possible reasons for results. If a student has prepared the lessons of a correspondence course carefully and reviews thoroughly according to the instructions in the syllabus, which outlines the material to be covered and the general format of the examinations, he usually does better-than-average work. If a student of either sex pursues the course to the point of taking the final examination, upon which the final grade is primarily determined in most instances, he has been given sufficient directed study to have mastered the content of the course. Because of the higher percentage of withdrawals on the part of the male students as reported in Hypothesis K, the student who feels he will do badly does not take the final examination; this might account, to some degree, for the slight difference between the average GPA, or mean grade, for both groups.

Field application. No special emphasis need be placed in assisting one sex or the other in the area of achievement as indicated by the grade received. In case there seemed to be difficulty in one sex or the other mastering a specific course, other factors might have to be considered in formulating a method of helping the group achieve better grades.

SUMMARY OF HYPOTHESES

A summary of these findings regarding the relationships of variables associated with enrollments in correspondence study is given in Table VII.

TABLE VII

SUMMARY OF FINDINGS
AS TO RELATIONSHIPS OF VARIABLES
ASSOCIATED WITH ENROLLMENTS IN CORRESPONDENCE STUDY

Hypotheses Accepted*		Hypotheses Rejected#	
Significant relationship between		No significant relationship between	
Variable A	Variable B	Variable A	Variable B
A Lapse of time between enrollment date and first lesson	Completion rate	B Distance from center	Length of time to complete
C Distance from center	Completion rate	F Length of time to complete	Achievement
D Reason for enrollment	~~Completion rate~~ Length of time to Complete	J Age	Achievement
E Reason for enrollment	Completion rate	L Sex	Achievement
G Previous education	Completion rate		
H Previous Education	Completion rate		
I Age	Completion rate		
K Sex	Completion rate		

*There is a true difference.

#There is no true difference.

Conclusions

Students enrolled in correspondence study courses must rely on themselves to a greater extent than students in residence because there is not set schedule of classes to attend or specific dates of examinations. Self-reliance and perseverance on the part of the student, therefore, are most important if the student is to be successful; first, in the completion of the course requirements, and second, in the obtaining of a satisfactory grade for his efforts.

The following considerations on the part of the correspondence educator may assist the student in attaining maximum achievement in learning:

1. As the time lapse between enrollment and submission of the first assignment has a significant relationship on the probability the student will complete the course, the student should be encouraged to submit his lessons as soon as possible.

2. Techniques to guide the younger and less experienced should be developed so that he will be more likely to complete his course and receive a satisfactory grade.

3. Since the length of time to complete the course has no significant effect on the achievement of the student, procedures regarding the rate of submitting lessons and the minimum time allowed for completion of courses should be reviewed. Sound administrative efficiency needs to be the primary consideration; however, the best service to the student and his reasons for selecting correspondence study rather than residence classes should not be overlooked in the final decision.

4. The fact that the male student tends to be less likely to complete a course than the female student should be reviewed with the purpose of developing methods of guidance and encouragement to meet his special needs.

Recommendations

The findings of this study suggest that further research into several areas might provide valuable information for the correspondence educator.

In-depth studies regarding the courses in which the student enrolls in relation to his age, achievement, and educational level might bring out some important relationships. The instructor's method of presenting the material, the requirements of the course, and the general pattern of correcting, commenting, and grading the students' work could be part of this exploration.

Before too much consideration can be given to the finding that students from some distance away from the correspondence center are not as likely to complete as those closer, several analyses should be made. The type of courses the students have selected, the reasons given by the student for enrollment, the lapse of time in submitting lessons, as well as the age, sex, and educational level of the student might be some of the factors analyzed.

A follow-up survey of the complete progress of the student in submitting lessons could result in significant observations which, in turn, would lead to the development of techniques which would be beneficial to the student. The regularity of the submission of his lessons and the time lapses between each set of lessons submitted might be analyzed in relation to whether he completes the course and what grade he receives if he does finish.

The percentage of male students who complete courses is less than that for the female students, but no significant difference was found in the achievement of the two groups if they completed. Further research in this area might point out some important considerations. The fact that no significant difference in achievement by men and women in the present study was found suggests that there might be value in further study into the reasons why male and female students tend to do about the same level of work in correspondence study but that in regular classes females tend to receive higher grades.

Serious attention should be given by all those in correspondence education, and by the authorities in charge of institutions which offer correspondence study,

to the need for further scientific analyses of important aspects connected with this field. The recognition of the importance of research should be reflected both in the budget allocations and in the time and personnel allowed for research in the various correspondence centers.

Finally, additional effort should be directed to the establishment of an international bibliography and journal of professional literature in the field of correspondence study. Primary sources of past research are extremely difficult to locate as many of the reports have never been published, are out of print, or otherwise unavailable.

The ERIC Clearinghouse on Adult Education, Syracuse University, as the depository of research in the fields of correspondence education, adult education, and continuing education should be informed of any studies that have been made. Furthermore, copies of reports and articles should be sent to the clearinghouse so that the results are readily accessible to researchers interested in determining what research has been done or is suggested for the field of correspondence study.

BIBLIOGRAPHY

1. Wedemeyer, Charles A. and Gayle B. Childs. New Perspectives in University Correspondence Study, Center for the Study of Liberal Education for Adults, Chicago, 1961, 74 pp.

2. Research Committee, Division of Correspondence Study, National University Association, An Annotated Bibliography of Correspondence Study, 1897-1960. Mimeographed. 266 pp.

3. Garrett, Henry E., Statistics in Psychology and Education, Longmans, Green and Company, New York, 1958. 478 pp.

4. Terman, L. M., and L. E. Tyler, "Psychological Sex Differences," in L. Carmichael (ed.) Manual of Child Psychology, Second Edition, 1964, pp. 1064-1114.

5. Wattenberg, William W. The Adolescent Years, Harcourt, Brace and Company, New York, 1955, 510 pp.